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CORRELATION
OF
THE PSYCHOLOGICAL AND
PHYSIOLOGICAL FORCES.

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Reprinted from "The Obstetrical Journal"
for October, 1877.

LONDON:
PRINTED BY SAVILL, EDWARDS AND CO.
CHANDOS STREET, WEST STRAND.
1877.

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THE purpose of the writer in the present paper is to offer a solution of the hitherto unexplained relationship existing between mental impressions upon the pregnant woman and certain peculiarities of physiological development or conformation of the child in the uterus.

For centuries past it has been known that strong impressions upon the mind of a pregnant woman were capable of causing marks, malformations, and otherwise affecting the physiological development of the fœtus.

Hundreds of such cases are recorded, and while their truth has been more or less openly admitted, their causation has been chiefly a subject of conjecture. That the relationship referred to can be irrefragably substantiated, so as to command the assent of all, is more than the writer can reasonably hope to accomplish, but he would, nevertheless, submit that sufficient reason, apparently, exists to warrant the presentation of the subject to the readers of this journal.

Many elaborate researches have been made with the object of ascertaining whether or not there exists any direct nerve communication between the mother and the fœtus. The establishment of such a conjecture was eagerly sought after, with the object of explaining the relationship between maternal impressions and fœtal formations. Hitherto, no ascertained fact affords the slightest ground for believing that such a nerve connexion exists.

Even if this imaginary hypothesis were a fact, it would

not shed the faintest ray of light upon the present discussion, nor offer a rational basis for the solution of the problem.

The theory of nerve connexion has to be discarded. There is no evidence to prove that peripheral nerves are able to materially influence the nutrition, development, or conformation of the parts they supply. Such a view would be tenable only upon the supposition that nutritive material was elaborated, as well as appropriated, in the parts affected, whereas physiology teaches us that nutritive matter is prepared, digested, and assimilated, in the digestive canal, &c., and that this work of elaboration takes place under the influence of the nervous system. It is by the digestive apparatus alone that the pabulum becomes converted into living matter, ready for tissue formation. We all know that no possible chemical combination can endow dead matter with life.

This vital process is carried on in the digestive organs, and its life-giving results distributed to every tissue of the body. I need hardly say that emotional disturbances exert a controlling influence over this important process. Depressing influences are able to arrest digestion, while cheerfulness and hope favour digestion. Individual experience will abundantly confirm the correctness of this assertion. This view of the subject, if correct—and that it is correct cannot well be doubted—leads to the very important conclusion that all the living matter required for tissue formation is prepared in the digestive apparatus and made ready for assimilation under the agency and control of the nervous system.

Not only is this the case, but we must concede to the same means and agency the power to reconstruct elements so as to become poisonous matter capable of destroying the child they previously nourished. Such a case is recorded in Carpenter's Physiology, where a mother applied her infant to her breast immediately after a period of intense excitement, with the result of instantly destroying its life. There are other forms of excitement (known to all) capable of very materially affecting the quality as well as quantity of the

milk. Illustrations of these views could be given to any extent, but such are not needed.

Traits of character, as well as expression of face and form of body, are also under the same controlling influence of the mother. Doubtless, many have observed the reproduction of the cast of countenance of some dear friend in the new-born child; such resemblance, when very striking, will always be found connected with the mother's impressions while carrying the child. The influence of scenery, &c., is well known in the production of many great men, the mothers of such heroes often passing through most exciting and soul-inspiring scenes while pregnant. The direction given to thought and sentiment are capable of working marvellous alterations in the physiological development of the young.

Even in the more mature and advanced in age the power referred to is known to manifest itself, often in a marked degree. The importance of rightly appreciating the causation of such acknowledged phenomena is very great indeed. If we call in question the power of the digestive apparatus to form living matter suited for each particular tissue, and suitable for it only, we are shut up to an hypothesis that fails to account for the phenomena so frequently presented to us. Such a conclusion would lead us to ascribe formative powers to the tissues supplied by the blood; whereas the view of the blood being the carrier of vital matter harmonises with what we know of physiology, and satisfactorily explains both normal and abnormal development. We must, however, always bear in mind that two important factors are to be noted as influencing development—viz., the quantity of the vital matter in the blood (in other words, its richness in the living matter), and the capacity of the individual tissues or being for assimilation. These factors necessarily vary with each individual, and counterbalance, to some extent at least, preponderating influences on either side. Peculiarities of development will depend upon the activity and capacity of the parts supplied, as well as upon the supply of living matter suited for its development.

There are various reasons why we should hold the theory that the formative power exists in the digestive apparatus only. Each tissue and each part of the body differs from the rest. Symmetrical development, normal or abnormal, favour this same view. Were this otherwise, we should find one part taking from the blood the particles of living matter destined for its neighbour, with the result of building up a conglomerate structure, unlike what is seen in nature. Not only are both sides of the being pretty uniformly developed, but the symmetry of various diseases has been the subject of comment by many clinical writers. Recent research leads us to the conviction that matter (pabulum) receives its special properties or characters when it is converted into its living state ; also that "living or formative matter is alone concerned in the development and the production of those materials which ultimately take the form of tissues," &c. ; also that the blood is the channel of distributing this living matter, which has had its peculiarities and varieties of structure impressed upon it while being vitalised under the powerful control of the nervous system.

The next point to engage our attention is as to whether there is any reasonable proof or logical explanation as to how strong mental impressions can directly affect the nutrition and growth of various parts of the body, whether of the mother herself or of her child in utero.

The fact of mental concentration influencing physical development has been already alluded to, and requires but little attention. Exercise develops the parts exercised ; not only is there increased blood supply, but the blood becomes richer in the living matter required, which in its turn is called into existence by the nerve force which is exerting its constant control over the formation of the living matter. The concentration of nerve force upon any part is well known to be capable of exerting a disturbing power.

Imaginary diseases are capable of becoming real by prolonged concentration of the mind. Even wonderful changes of parts have been known to occur within short periods under such circumstances. All have, doubtless, heard of the case of the mother who saw her child's fingers crushed by a falling

window, and was so powerfully affected by the sight that in a short time her own hand presented all the appearances of the mangled hand of her child. The mental impression in this case was strong and deep. The living elements destined for the particular part were made to suffer a radical change which brought about the consequences referred to. The changes that occurred in this case are analogous to those that took place in the milk of the mother which destroyed her child's life. The change in the living matter in both cases must have occurred during the vitalising of the pabulum. In the child, at least, the absence of nerve connexion precludes the possibility of tissue appropriation being the cause of such baneful changes.

The influence of the mind in the causation of disease, as well as in the cure of disease, is incontrovertibly established. We all know that a strong will exerts a magical power over the restorative powers of the sick. Herein, doubtless, lies the chief virtue of attenuations thinner than air. That they bring about great results cannot be denied by the unprejudiced observer.

It is in this same hypothesis that we explain the success of one practitioner over others of equal skill and judgment.

That we may reasonably entertain the view that each individual development is under the control of the nerve force seems a settled fact. Does the same force, exerted in the mother, control the formation of the child in her womb? History certifies to the occurrence of such cases too numerous to mention. Doubtless each individual practitioner has also met with cases illustrative of this fact in his own practice. That moral qualities as well as intellectual powers are thus communicated will probably be more readily granted, than that physical qualities, or changes, can be thus induced. Family traits of character are capable of transmission from parent to child, provided always that the progenitors are themselves endowed with soundness of body and mind. This latter quality is essential for the successful entrance of the new being into life. Without this initial force the structure of the new being will be feeble and imperfect. This is especially the case with enfeebled fathers, whose lack of

physical force causes a failure of the transmission of high intellectual powers. Hence the correctness of the saying, "a wise father, but a foolish son." Hence also the well-known fact that intellectual superiority is more dependent upon the qualities of the mother than the father, provided the father possesses a fair measure of intelligence, combined with an excellent physical development. These conditions are necessary to enable the new being to start in life with powers to appropriate the rich supply offered it by the mother.

As we have already seen, the qualities of the blood depend upon the vitalising power of the being. Also that this elaboration of dead into living matter is conducted under the control of the nervous system, any disturbance of which disturbs the balance between supply and demand, and impresses its vital peculiarities upon the development of the child.

Remarkable examples of this fact have come under my own observation.

In one instance a friend of mine, while carrying her child, saw a man going along the street on his knees, both legs having been amputated below the knee-joints. This sight so disgusted and horrified her that she could not banish the impression from her mind. This derangement of the nerve force prevented the proper elaboration of the living matter the parts required, and the result was that the limbs of her child were both absent to the same extent as in the person whose disfiguration had so miserably impressed her. In such a case there can be no gainsaying the assertion that the mental impressions upon the mother did so affect the tissue supply as already stated.

It might be asked why the extremities of the mother were not affected likewise, as in the case of the mother who saw her child's hand crushed. The only answer that occurs to me to give is, that the tissues of the adult are not so readily altered as are those of the plastic child in utero. The natural effect of rapidly-growing tissue would be to appropriate the altered pabulum more quickly than in the mature, and so also would such tissue more rapidly fail when such

live matter is denied to it. The mother's parts would bear deprivation for some time without sensible damage. The tissues of the child would respond to such impression more quickly and permanently.

The natural law of supply and demand acts here as in other cases, whereby the supply is carried towards the point of greatest need.

A remarkable case of intra-uterine malformation came under my notice a day or two ago. The facts are as follows:—When somewhat more than half through gestation, a pregnant woman's youngest child, who was out playing, was carried to her door with the skin of its forehead cut open, and the face, &c., covered with blood. The mother thought the child was dying, and held it in her arms, during which time she endured the greatest mental anxiety. When her child was born it had the side and front part of the forehead depressed, the eyes out of their natural position, and the well-defined cicatrix of a similar size, and in the exact position of the cicatrix on the forehead of the injured child. The condition of the mental impression was as correctly reproduced in the babe as if reproduced by art. The contortion of the head I attribute to the apparent contortion of the wounded child's head, as seen by the mother.

I mention these cases by way of illustration, but have met with many others during my professional life. Believing, as I do, in the hypothesis advanced, it seems remarkable that such cases do not occur more frequently. Such would doubtless be the case, the constructive powers of the mother being so great, were it not for the ever-increasing individuality and formative power of the fœtus itself. The powers of the mother to mould are balanced by the increasing powers of the fœtus. The extreme importance of these views can hardly be over-estimated, inasmuch as they are capable of such a boundless application. Their workings and influences surround us on all sides. The acknowledged importance of a sound physical development and elevated surroundings have an increased importance in our estimation. Who can estimate the value of outside influences

especially upon the parturient woman? or to what extent the mental and physical perfection of our race may be advanced?

The views I have offered in this imperfect paper explain the reason why children of a second marriage frequently resemble a former husband; also why a wife who has borne children acquires a resemblance to her husband. In the first case the mother's blood is charged with living matter from the former child in utero, and which, being present, manifests its power over the growth of the new being. In the other case the mother comes to resemble her husband because the foetus imparts to her by the same agency some of its own character, which it received from its father when it commenced life.

As might be expected, the resemblance becomes more and more markedly present by each addition to the family.

I might have dwelt upon the influence of the picture of a loved friend in moulding the features of the child in the womb; also of the same result following the sojourn of a dear friend while childbearing; but my object is not indefinitely to apply the views advanced, but rather to offer a solution to a problem that has attracted the attention of medical men in all ages, and which was the theme of my graduating address some fourteen years ago.

We, therefore, conclude that the psychological and physiological forces are correlated to each other, because

1st. That the body is built up of living matter, prepared under the controlling influence of the nervous system.

2nd. That each tissue has the power of appropriating, but not of forming, the living matter suited to its growth.

3rd. That the impressions made upon the mind of an individual can effect changes in the growth and conditions of any part of the body.

4th. That mental impressions upon a pregnant woman are capable of determining the physiological conformation of the child in the uterus.

